

Friday, October 20, 2023 at 08:36:15 Eastern Daylight Time

**Subject:** Questions Related to Defendant's Response to Plaintiff's Motion and Memorandum; Civil Action No. 3:19-0573

**Date:** Thursday, October 19, 2023 at 3:29:19 PM Eastern Daylight Time

**From:** Jim Kyles

**To:** howard@sammonsfirmwv.com, Travis Fisher, Derek Teaney, Joe Lovett, Mike Becher, jhecker@publicjustice.net

**CC:** Robert Chambers, US District Court, Darcy Sachs, djackson@carollo.com, ghoeger@carollo.com

**Attachments:** image003.png, image002.png, image004.png

Howard et al,

As you can imagine, I have been tracking with interest the initial Motion and Memorandum filed by Plaintiffs on October 4, 2023 and the referenced response filed by Defendant on October 17th. The Court has also advised me that I may be asked to provide some thoughts on the motion and response.

Based on a review of the original motion and memorandum and Defendant's response, a few questions came to mind for follow-up. The photograph included in the document "RESPONSE by Lexington Coal Company, LLC in opposition to [126] MOTION - Exhibit C" (reproduced below) raises questions regarding the method of construction of the BCRs at White Flame. Details regarding the physical construction of the BCRs (media composition, layering, distribution piping, collection piping, etc.) have been requested by the Special Master as early as April 2023; however, only the BCR volume certification drawings have been received to date. These do not contain any information regarding media or piping or details on construction means and methods, all of which may impact performance of the BCRs.

- Question 1: Why is the industry-standard method for placement of media in BCRs not being followed?

The Exhibit C photograph below shows a tracked vehicle spreading media within the lined BCR basin. Industry practice for BCR construction is to carefully place the media in layers using an excavator (see photograph below from installation performed at Patriot Coal). This method avoids any vehicle traffic on the media and prevents compaction. This is particularly important to avoid any short-circuiting of flows through the BCR and to ensure that design contact times with media are achieved. Biological treatment systems are particularly susceptible to upset due to changes in treatment conditions and require contact times within the treatment cell so that bacteria resident in the system can effect treatment. While this is true for treatment of organic constituents, it is paramount when using biological systems for the treatment of inorganics, such as selenium. Compaction of media within the BCR may create flow channels that would allow for short-circuiting of the BCR flow routes within the cell, reducing treatment levels via reducing contact times within the BCR. As such, care is typically used when installing and placing treatment media within the BCRs.



Photo from Exhibit C





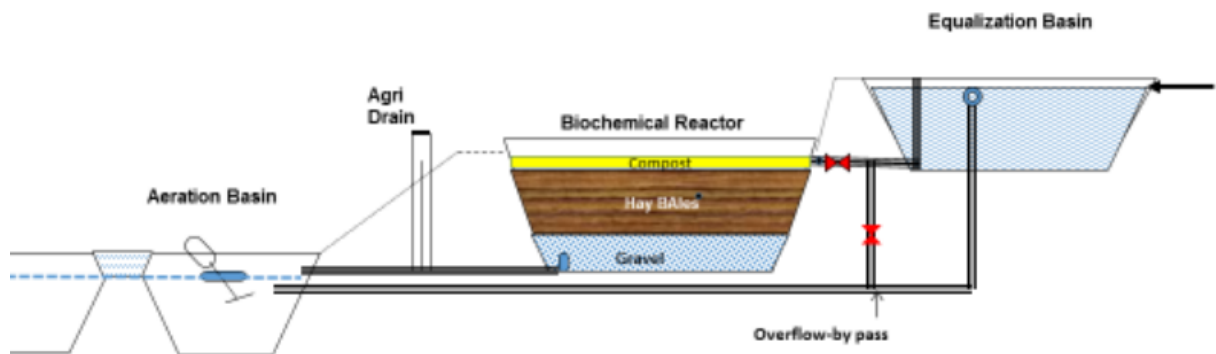
Photo From Patriot Coal Presentation – November, 2014.

- Question 2: Why is the Cardno design for media layering apparently not being followed? The Cardno design (figure below) shows specific thicknesses of gravel, hay media and compost. The Exhibit C photo above appears to show wood chips, and a gravel layer is not visible. What is the intended media layering (thicknesses and compositions) and why is this different from the Cardno design? Is the PVC liner protected with a geotextile layer? Is a gravel layer present at the base of the BCR? Without any design details or as-built drawings, it is not readily apparent if the BCR cells were constructed in accordance with the Cardno design and industry standards.



White Flame Minin  
White Flame 10 Selenium Treatment-De  
Prepared for: White Flame

## White Flame 10 BCR Cross-Section



Source: Cardno Design, 2016

- Question 3: What is the intended configuration (layout and sizing) for distribution piping and collection (drain) piping so as to avoid short-circuiting within the BCR?

There should be a network of pipe grids within the BCR to distribute influent evenly across the BCR, and to collect effluent from within the gravel layer. What is the design for these systems so that influent is evenly introduced to the BCR cell and treated effluent is withdrawn?

Based on the concerns associated with the construction suggested by Exhibits B and C of the Defendant's Response, it is important that the Defendant quickly respond to these questions and provide the design details and/or as-built drawings to the Special Master for review. If the BCRs are constructed in the manner suggested by the Response, then the Special Master's previously voiced concerns on adequate sizing of the treatment system may be moot, and the viability/utility of the BCR system itself may be in question.

Please provide design details per the above to the Special Master by October 25, 2023.

Regards,

Jim Kyles